

STATE OF CALIFORNIA
Department of Transportation Specification
Red Primer Paint
(Waterborne Formula PWB-145C)

SCOPE

This specification covers a pre-mixed waterborne paint formulated for use as a prime coat on properly prepared metal surfaces.

This coating is intended for spray application. Limited application can be made by brushing and rolling.

REQUIREMENTS

General:

This specification is intended to specify paint that will meet service requirements for bridge construction and maintenance. All properties listed shall be maintained for a minimum of one year after acceptance. If the vendor is making this paint for the first time, the Transportation Laboratory in Sacramento must be consulted.

Materials:

The raw materials for use in the paint formula shall conform to the specifications designated or paint material code number hereinafter specified.

QUALITY ASSURANCE

The inspection, sampling, testing, packaging and marking of the coating shall comply with State of California Specification 8010-XXX-99, *Coatings, Protective, Quality Assurance Requirements*.

Unless otherwise permitted by the Maintenance Engineer, paint shall be sampled at the place of manufacture and application will not be permitted until the paint has been approved by the Maintenance Engineer. Raw materials and copies of batch records used in the manufacture of the paint shall be submitted as requested by the Maintenance Engineer.

All tests will be conducted in accordance with the latest test methods of the American Society for Testing and Materials, Federal Test Method Standard No. 141, and methods in use by the Transportation Laboratory.

Patents:

The contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the State of California, and its duly authorized representatives from all suits at law or action of every nature for, or on account of, the use of any patented materials, equipment, devices, or processes.

STATE OF CALIFORNIA

Department of Transportation Specification

Red Primer Paint
(Waterborne Formula PWB-145C)

Description

This specification covers a ready-mixed, waterborne paint formulated for use on blast-cleaned steel surfaces exposed to the air.

This coating is intended for spray application. Limited application can be made by brushing or rolling.

Composition

Paint shall be mixed in the following proportions and sequence:

<u>Component</u>		<u>Weight percent</u>	<u>(LB/100 gallons)</u>
Water		14.03	164
Defoamer	(1)	0.20	2.3
Thickener	} blend (2)	~ 0.13	~ 1.5
Water	} blend	0.86	10.0
Hydroxypropyl Methylcellulose	(3)	4.02	47.0
(2.5% solution in water, pH adjusted to 8.5-9.0)			
Surfactant (30% in water)	(4)	0.90	10.5

Hold back part of water initially to get good grind viscosity. Grind under high shear to achieve specified grind. Do not exceed 38°C during this operation. Add remainder of water after grind is achieved.

Calcium Phosphosilicate	(5)	5.60	65.5
Magnesium Silicate	(6)	18.22	213.0
Red Iron Oxide	(7)	2.74	32.0

Reduce speed and slowly add stabilized latex. Stabilize latex by first adjusting to pH 3.5 with 28% ammonium hydroxide, then blend with surfactant solution. (Failure to make this adjustment will result in an unacceptable batch of material.)

Vinyl acrylic latex	(8)	50.30	588.0
Surfactant (30% in water)	(4)	2.00	23.4

Mix thoroughly, then add coalescent

Coalescent	(9)	1.00	11.7
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Characteristics

Density, grams per milliliter, ASTM D-1475	1.38 to 1.41
Pigment by weight of paint, percent, ASTM D-3723	25.6 to 27.0
Nonvolatile content, weight percent, ASTM D-2369, Procedure B	57.0 to 59.0
Nonvolatile content, volume percent, ASTM D-2697	40.7 to 42.7
Fineness of grind, Hegman, ASTM D-1210	4 to 5
pH	4.0 to 4.5
Consistency, ASTM D-562, grams (Equivalent KU)	200 to 300 (82 to 95)
High-shear viscosity, ASTM D-4287, 0 to 5-P cone, shear rate 12 000 s ⁻¹	0.4 to 0.8 P
Drying time, 100 µm wet film, ASTM D-1640	
set to touch, hours	1 maximum
dry through, hours	4 maximum

- (1) Colloid® 646 (Rhône-Poulenc)
- (2) Rheology Modifier QR-708 (Rohm and Haas)
- (3) Methocel® J12MS (Dow Chemical)
- (4) Pluronic® F-87 (BASF Wyandotte)
- (5) Halox® CW-491 (Halox Pigments)
- (6) Specific gravity 2.7 to 2.85, oil absorption* 30 ± 2, pH 9.5 ± 0.5, fineness of grind, Hegman, (ASTM D-1210) 3.5 to 4.0, median particle size 6 to 7 µm, maximum 75 µm, platy particle shape, 99% passing a 45 µm mesh sieve, dry brightness 87 ± 2%.
- (7) Synthetic iron oxide, spheroidal particle shape, Fe₂O₃ 98% minimum, oil absorption* 20 ± 3, specific gravity 5.2 ± 0.1, 99.9% passing 45 µm mesh screen. Water soluble matter 0.15% maximum, easy dispersible type recommended.
- (8) Haloflex® 202 (Zeneca)
- (9) 2,2,4-Trimethylpentanediol-1,3-monoisobutyrate

*Oil absorption values determined according to ASTM D-281.

**PAINT SHALL BE PACKAGED IN POLYPROPYLENE OR HIGH DENSITY
POLYETHYLENE PAILS AND LIDS ONLY.**